

REMARKS/ARGUMENTS

Claim 16 has been objected to for failing to define R and X. Claims 16 and 17 have been combined.

Claim 25 and 26 have been rejected under 35 USC 112, second paragraph, as being indefinite. The base glass components of the claims total 118%, which renders the claims indefinite since it is not clear from the specification that the base glass can comprise more than 100 mol percent.

Claims 25 and 26 have been amended to reflect the proper units of measure as found in the specification on page 6, in Table II and on page 4, paragraph [0013]. The composition of glass compounds are listed in mol percent and the dopants are listed in weight percent. Table II has also been corrected to reflect the glass compounds totaling 100 percent. This was a clerical error. The addition of the dopant by weight percent can give a total percent over 100% as original illustrated in Table II.

Claims 1, 2, 4, 6, 7, 16 and 21 have been rejected under 35 USC 102(b) as being anticipated by Tran (5,809,199). The examiner has stated that Tran discloses a fluorophosphates glass comprising 25 mol percent of $\text{Al}_2(\text{PO}_3)_3$, $\text{Ba}(\text{PO}_3)_2$, $\text{Mg}(\text{PO}_3)_2$, and NaPO_3 , 20-45 mol percent AlF_3 , 25-65 mol percent RF_2 where R is an alkaline earth metal, up to 25 mol percent LnF_3 , where Ln is a lanthanide, and up to 15 mol percent MF where M is an alkali metal. The examiner indicate these ranges are sufficiently specific to anticipate the limitations of the rejected claims.

The instant application does not include the light metal fluoride, AlF_3 , that is always in the Tran formulations, but rather may have heavy metal fluorides such as PbF_2 and BiF_3 , that may create a high refractive index ($n_D = 1.60 - 1.70$) optical glass. In addition Tran generally uses a soluble component NaPO_3 . The instant invention does not use such compounds as they inhibit the important creation of high chemical durability optical or laser glass.

It is believed that with Tran's use of compounds such as AlF_3 that the disclosure does not

anticipate the limitations in the claims cited for the instant invention that may create a more durable, higher refractive index glass. While it is true that the word "comprising" used in claims may allow for addition of further components, the instant application doesn't include AlF_3 as it would detract from the glass. Tran always includes AlF_3 . While Tran declares high chemical durability and low solubility, the compounds actually included indicate degradation in these disclosed features. The references to dopants by weight percent in the instant application claims has been corrected to agree with the specification as described earlier.

Claims 1, 2, 4 through 10 and 16 -24 have been rejected under 35 USC 102(b) as being anticipated by Yamazaki, et al (5,755,998). The examiner has stated that Yamazaki discloses a fluorophosphates glass comprising in mol percent: 1 through 15 P, 1 through 18 Al, 0 through 12 Mg, 0 through 18 Ca, 1 through 21 Sr, 0 through 28 Ba, 0 through 3.5 Zn, 0.01 through 0.8 Eu, 0.2 through 4 Tb, 0 through 3 Sm, 0 through 1 Mn, 0 - 4 Ln where Ln is at least one of Y, La, Gd, Yb, Lu, Dy, and Tm, 0 through 0.2 Ce, 0 through 3 R where R is Li, Na and/or K, 4 through 55 O, 15 through 70 F, and 0 through 10 Cl. The examiner indicates these ranges are sufficiently specific to anticipate the limitations of the rejected claims.

The Yamazaki list of elements rather than specific glass formation compounds is like a generally shopping list of basic elements that may be good for glass compositions. The Yamazaki disclosure of elements is not specific enough to anticipate the formulations of the instant invention. As examples, the instant application does not include SrF_2 whereas Yamazaki always includes Sr. The presence of strontium in glasses adds a radioactive element to the glass that is not desirable. In addition, the instant invention, discloses use of heavy metal fluorides as Ba, Pb and Bi; whereas, Yamazaki only discloses use of Ba along with Li, Na, K, Cl, Zn, Y and La all of which can either be left out or added in the glass compositions. There is little specificity in this disclosure. Also, Yamazaki discloses use of rare earth elements as divalent fluorescent agents as another form of his shopping list of components for glasses.

In checking what specifics Yamazaki actually includes in the patent, the use of $\text{Ba}(\text{PO}_3)_2$ is

not a significant component of the glass in contrast to the instant invention. To the extent Yamazaki is specific, as illustrated in examples, Ba (PO₃)₂ is only included in the range of 0 - 5 percent. The instant invention uses Ba (PO₃)₂ as one of the important glass compounds and claims use greater than 5 percent. It is believed nothing in Yamazaki anticipates glass formations with Ba (PO₃)₂ as a significant compound.

The comments previously provided by the examiner concerning the mol versus weight percent of dopant has been corrected in the claims to be weight percent as discussed above.

Claims 1, 2, 4 through 6, 8, 9, 16 through 20 and 22 through 24 have been rejected under 35 USC 103(a) as being unpatentable over Kodama (4,386,163). The examiner has stated that Kodama teaches a fluorophosphate glass comprising 13 through 39 weight percent of Al₂ (PO₃)₃, 5 through 19 weight percent Ba (PO₃)₂, 0 through 24 weight percent Mg (PO₃)₂, 1 through 20 weight percent Ca (PO₃)₂, 0 through 8 weight percent AlF₃, 2 through 13 weight percent MgF₂, 0 through 20 weight percent SrF₂, 1 through 33 weight percent BaF₂, 0 through 8 weight percent YF₃, 10 through 36 weight percent BaO, 1.5 through 12 weight percent Y₂ O₃ and/or Yb₂O₃, 0 through 6 weight percent ZnO, 0 through 29 weight percent PbO, 0 through 22 weight percent Nb₂O₅. The examiner further provides a molecular percentage example of a Kodama theoretical glass composition that may be in the component ranges of the instant invention.

The Kodama art always uses Ca (PO₃)₂ and BaO in the glass formations as well as listing AlF₃, SrF₂, YF₃, Mg (PO₃)₂, Y₂O₃, ZnO, PbO and Nb₂O₅ for possible use. The instant invention does not disclose use of these compounds and provides a composition with a broad glass forming domain. Kodama uses oxide as part of the glass composition whereas the instant application claims metaphosphates and fluorides for the glass composition with oxide only in the form of dopants. The instant invention doped fluorophosphates glasses may have a high refractive indices (nD = 1.60 through 1.70) and high transmission in the rear infrared spectra (6 through 8 micron)

with the presence of the heavy metal fluorides, BaF_2 , PbF_2 and BiF_3 . It is believed the Kodama disclosure does not encompass or anticipate the glass formulations of the instant invention as it discloses elements required that are not claimed in the instant invention.

It is believed with the clarifying amendments that the uniqueness of the instant invention is not disclosed or anticipated in the cited art.

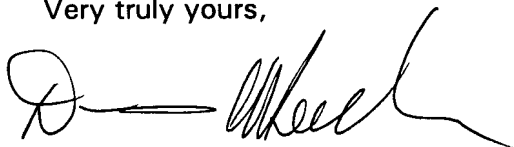
Accordingly it is believed that the objections and rejections under 35 USC Section 102(b), 103(a) and 112 have been overcome by canceling and amending of the claims and the remarks, and withdrawal thereof is respectfully requested.

In view of the above, it is submitted that the claims are in condition for allowance. Reconsideration of the cause for rejections and objections is requested. Allowance of claims 1 through 10, 16 and 18 through 26 is earnestly solicited.

No additional fee for claims is seen to be required.

If you have any questions do not hesitate to contact me.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Dennis W. Beech', with a long horizontal stroke extending to the left.

DENNIS W. BEECH
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DWB/ab